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# CARNIVOROUS PLANT NEWSLETTER

VOLUME 14, Number 2 JUNE 1985





# CARNIVOROUS PLANT NEWSLETTER

Official Journal of the
International Carnivorous
Plant Society



Volume 14, Number 2
June 1985

## COVER PHOTO

*Nepenthes* × *kinabaluensis* Kurata (*N. rajah* × *N. villosa*) in habitat on Mt. Kinabalu, Borneo. Note size of pitcher with ruler on right. Photo by R. Triplitt.

The co-editors of CPN would like everyone to pay particular attention to the following policies regarding your dues to the ICPS.

All correspondence regarding dues, address changes and missing issues should be sent to Mrs. Pat Hansen, 3321 Hamell Rd., Fullerton, CA 92635. DO NOT SEND TO THE CO-EDITORS. Checks for subscriptions and reprints should be made payable to CSUF FOUNDATION-ICPS.

All material for publication, comments and general correspondence about your plants, field trips or special noteworthy events relating to CP should be directed to one of the co-editors. We are interested in all news related to carnivorous plants and rely on the membership to supply us with this information so that we can share it with others.

Views expressed in this publication are those of the authors, not necessarily the editorial staff.

Copy deadline for the December issue is October 1, 1985.

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PUBLISHER: The International Carnivorous Plant Society by the Fullerton Arboretum, California State University, Fullerton, CA 92634. Published quarterly with one volume annually. Printer: Kandid Litho, 129 Agostino Rd., San Gabriel, CA 91776. Circulation: 582 (110 new, 472 renewal). Dues: $10.00 annually, $15.00 foreign. Reprints available by volume only.
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# News and Views

BRAD ADLER, 7575 Cambridge #3103, Houston, Texas 77054

Enclosed is a photograph I took of an abnormal flower of *Pinguicula pumila* in Wilmington, N.C. Normally *P. pumila* may have several flowers at one time, but only a single flower per scape. In this case a single scape bore three flowers. This may be of interest to *Pinguicula* enthusiasts and Landon Ross whose "Notes on Abnormal Floral Development in Pinguicula" was published in CPN Vol. V, No. 3 (Sept. 1976) page 43.

In the December 1984 issue of CPN is an article about the "CP Bog at the Fullerton Arboretum," by Leo Song. I would like to mention that I am also growing *Sarracenia (S. alata)* in Southern California (for two years now). My plants are growing in the San Fernando Vallley of Los Angeles, where generally the heat is greater and the humidity lower than that in Fullerton. The plants are growing in my mother's lawn, in pulverized pure Canadian sphagnum, with a southern exposure that receives full sun all year round, from dawn to dusk, without shading of any kind. They are watered by the lawn sprinklers when the lawn is watered, with untreated Los Angeles tap water. I last saw the plants in Dec. 1984, and the number of plants had increased due to natural division of the rhizomes. As of March 20, 1985 my father reports that the plants are in full bloom and healthy spring growth is on the way.



*P. pumila* triple flower.
New Hanover Co., N.C. Brad Adler

The mislabeling of CP in books and articles is a very common occurrence. Take for instance the 1984 Official State Highway Map of Mississippi with wildflowers on the reverse. Pictured is *S. alata,* but the label reads *"Sarracenia leucophylla."* Insectivorous was misspelled "insectiferous," and of the 25 or so wildflowers shown, only the pitcher plant flower is without petals.

MATT HOCHBERG (5500 Fieldston Rd., Bronx, N.Y. 10471)

I noticed that in the first CPN of 1984, in the CP sources list, the Hinode-Kadan Nursery of Japan offered many genera. Several days ago, I received their current price list and Sarracenias were also on it. Among the 53 different *Sarracenia* plants that were listed was *S. oreophila!*

Another price list that I have is that of Marcel Lecoufle, 5, Rue de Paris, 94470

## SPECIAL NOTICE

*Carnivorous Plants,* by Adrian Slack, is incorrectly listed at $15.00 in the 1985 List of CP Books and the MIT Press ad in the March, 1985, issue of CPN. The correct price is $12.50.

Boissy Saint Leger, France. They offer *Dionaea, Darlingtonia, Drosera, Pinguicula, Sarracenia,* and *Nepenthes.*

JACQUES HALDI (9, Chemin des Pontets, 1212 Grand-Lancy, Geneva, Switzerland).

I have received from Ray Triplett some photos of the San Francisco Flower Show with your photo and other CP members. Your show was very good and original in the decoration. In 1984, I read a few books on *Nepenthes* and I believe that I found one error in the book of Kurata "*Nepenthes* of Mt. Kinabalu" on page 60 which lists for *N. rafflesiana* the synonym: *N. hookeriana* Low. These are two different species and I think that is an error in print.

RICK MAULDER (112 Harbour View Rd., Titirangi, AK7, New Zealand).

I have enclosed a photo of a number of *Dionaea* plants growing on a flower scape. Some of these are flowering too. It would be interesting to see if any of these second scapes grow VFTs as well. Notice how thick the supporting scape is. The plant was grown by John Duffy and I took the photo.

I have a *N.* × *mastersiana* plant growing outside for over a year. This young male plant has many red, 12 inch long pitchers and within days after opening are usually half-full mostly of wasps and other insects. They fill up so much that the tops die off. It is interesting that the pitchers also catch a few nocturnal moths as well. Next season I will send some photos when the plants have climbed up the bushes outside. I will be trying *N. khasiana* too! I have a *N. villosa* seedling which seems to be growing better outside than in the glasshouse and I'm pleased that winter is coming since this species likes cold nights and cool-warm days. I'll let you know how it gets on..

Enclosed are two photos of *Utricularia deliculata* in native habitat and a closeup photo showing the long spur which is forked at the end and has the same color as the rest of the flower (not shown).





PHILL MANN (6 Houston Crescent, Bunbury, Western Australia).

I am planning to visit the United States from January to March 1986 and would be interested in visiting and talking with other growers. I will be bringing as many slides and photos as I can carry and will gladly show these to anyone interested in CPs here in West Australia. If anyone is willing to put us (my girlfriend, Min, and I) up for the night it would help us to get further around your big country. I would like to visit as many collectors as I can manage and compare notes and growing methods to combine with our conditions. Please write to me as soon as possible so I can plan a schedule which I will print up and send to you.

LARRY MELLICHAMP writes: Rob Gardner (of the North Carolina Botanical Gardens) and I are getting ready to evaluate *Sarracenia* hybrids that each of us have accumulated for the purpose of selecting some of the best clones to name as cultivars. We would be interested in hearing from anyone who has nice specimens that we could evaluate. We are going to define a set of guidelines by way of evaluating cultivars for naming, such as the (a) ease of growth, (b) vigor of the plant, (c) color or visual appeal, (d) unusual nature, (e) combination of species, (f) ability to propagate easily, (g) how good it looks in winter (*S. rubra gulfensis* is especially nice here), etc. Then we will look over good specimens that we each have in our collections. We need to name something produced in the U.S. If some U.S. growers have already named clones of *Sarracenia*, then they need to let someone know before we proceed. Since CPN is the registration authority for cultivars, I think we need to name some! Rob and I are not taking this lightly, nor rushing in "just to name something"; we are going to scrutinize every possible choice carefully. But I know we have some good plants. We have a commitment from Mr. deGroot of Holland to tissue-culture propagate any clones that we like to make available to hobbyists. This is something botanical gardens and growers should have done long ago like they have in England.

(*Editor's note:* Watch for the article "Carnivorous Plant Culture in Holland" by Larry Mellichamp in the next issue.)

MARK OLSON (2114 Whyte Park Ave., Walnut Creek, CA 94595).

I am writing regarding several things. First, I believe Ruedi Furst's article, "Sundew as an Officinal Plant" was written not as an advertisement for the cough syrup, but simply because it pertained to CP and was an item of interest to members. Besides, most members are not going to run out and purchase a cough medicine simply for its *Drosera* content. Perhaps, it would have been better for Mr. Brodt, in his letter regarding the article to suggest an alternative such as for Mr. Fuerst to mention conservation measures.

Secondly, I have noticed something that I would like to hear more about. The first pitcher of the season on my Sarracenias are larger than subsequent pitchers for that season. Though all my plants have exhibited this growth pattern, one specimen of *S. purpurea* showed it best. It was transplanted several times last summer, and only grew one leaf. All winter it lay dormant and then this spring it grew a truly phenomenal pitcher. Pitchers produced after this one were smaller. I think the rhizomes may absorb a great amount of nutrients (such as there is in the soil), then expend more of it on the first pitcher than later ones. After several months, however, large pitcher growth resumes, probably from insect nutrient accumulation.

Thirdly, in the article about *Brocchinia*, bromeliads were called saprophytes. Bromeliads are definitely autotrophic and perfectly capable of photosynthesis.

Lastly, there are many letters about conservation measures, plant banks, etc. The enthusiasm is there! Let's start corresponding with each other and really get something started. I find the conserva-

tion-minded attitude really great. I was recently a member of a reptile society. These people were hardly concerned with saving a species from extinction. All they were interested in was collecting, collecting and collecting. I am proud to be a member of the ICPS.

CLAUS THIEDE (Goslarche Str. 70, D-3300 Braunschwieg, W. GERMANY)

writes:

I'd like to send you a M$20.00 bill from Malaysia for the CPN. This bill was introduced some months ago to Malaysia, and is interesting as it is the only bill with a carnivorous plant on it to my knowledge. I suppose the plant is *N. rafflesiana,* but maybe somebody might know this better.

# SEED BANK

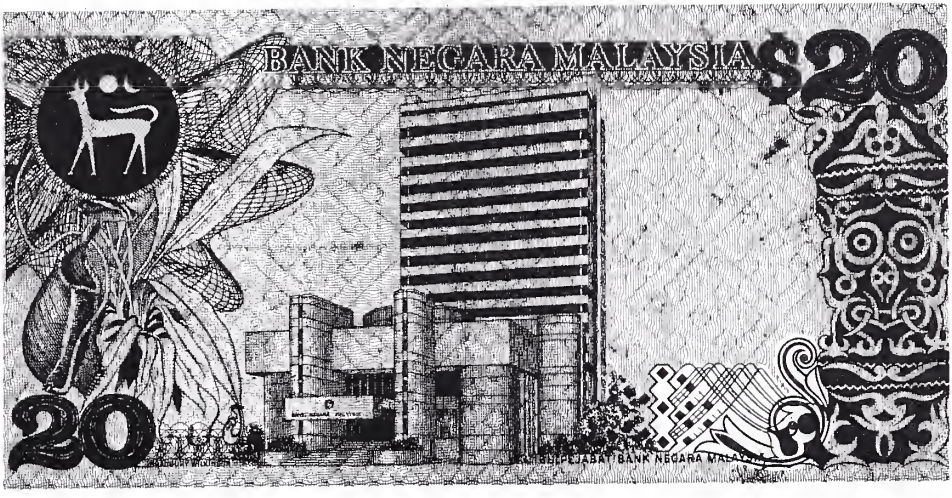
Patrick Dwyer (St. Michael's Episcopal Church,
49 Killean Park, Albany, NY 12205)

To send seed: Please remove seed from the seed capsules and place it in small envelopes (preferably paper so that they dry out enough to prevent mold). Label with the origin and date of collection, including habitat if it is exotic. Fold the envelope once or twice before taping so that the seeds don't stick to the tape. After the seed is received it will be placed in smaller packets; donors will be informed of how many packets they have donated. A donation of 10-19 packets earns one free seed packet of comparable rarity, with one additional free packet for each additional 10 packets.

Do not ask to trade for seed from the bank. Everyone will have to buy all but the free packets.

To order seed: Please enclose payment. List the seeds desired and an equal number of substitutes in order of preference. If requested, Patrick will add any cultural instructions of which he is aware. Each issue of CPN will include an update of the inventory. Cost per packet: $.75. (Number of packets is listed if less than 15 are available.)

*Byblis liniflora; Darlingtonia californica; Dionaea muscipula; Drosera auriculata, D. binata, D. binata multifida* (2), *D. burmannii, D. capensis, D. capensis* "Merry Go Round" (cristate?), *D. capensis* (narrow) *D. capensis* (mix), *D. capillaris, D. communis* (4), *D. dielsiana, D. filiformis filiformis* (10), *D. glanduligera* (4), *D. indica, D. indica* (Australia) (10), *D. intermedia, D. macrantha, D. montana* (10), *D. natalensis* (1), *D. pallida* (3), *D. peltata, D. pygmaea* (2), *D. ramellosa* (2), *D. rotundifolia, D. rotundifolia* (forked stalks), *D. spathulata, D. spath.* (Formosa) (2), *D. spath.* (Kansai), *D. spath.* (Kanto), *D. spath.* (white), *D. stenopetala* (5), *D. stolonifera, D. trinervia* (7); *Nepenthes albomarginata, N. khasiana; Pinguicula primuliflora* (1), *P. vulgaris* (3); *Polypompholyx multifida, P. tenella* (10); *Sarracenia alata* (2). *S. flava* (red tube & green lid), *S. flava rugelii* (10), *S. minor* (5), *S. purpurea venosa* v. *chipoca* (10), *S. rubra gulfensis* (3), *S. rubra wherryi, S.* × *formosa* (1), *S.* × *readii* (2), *S. leucophylla* (red form) (3), *S. leucophylla* (tall thin red form), *S. leucophylla* (large stocks), *S. oreophila, S. purpurea purpurea, S. purpurea venosa, S. rubra* (3), *Sarracenia* hybrid mix, *S. (oreo* × *purp)* × *purp. purp.* (3), *S. flava* × *purp.* × *chelsoni* (10), *S. rubra* × *oreo* (10), *S. rubra gulf/leuco* (3), *S. leuco/minor* (3), *S. alata/minor* × *psitt/oreo, S. flava/leuco, S. alata/minor, S. purp/leuco; Utricularia dichotoma* (2), *U. gibba* (1), *U. hookeri* (3), *U. lateriflora* (4), *U. peliculata* (4), *U. subulata* (1), *U. uliginosa* (2), *U. violaceae* (4).




Maylasian $20.00 bill showing *N. rafflesiana.*
Submitted by Claus Thiede

# PEST CONTROL

by Kathleen Rutkiewics, (Connecticut Valley Biol. Supply Co., P.O. Box 326, Southampton, MA 01023)

Just a few cultural notes here to share with fellow CP'ers. Since most pesticides do not mention carnivorous plants on the label, pest problems have to be approached with the "trial, error, good luck and keep your fingers crossed" method.

Fungus gnats in a terrarium are mostly a nuisance, sometimes a problem. They also seem to ignore the fact that they are surrounded by lures and traps for their demise. Left unattended, however, they can turn a terrarium into a crawling mass of tiny larvae and midges. Systemic household insecticide granules consisting of 1% Di-Syston, sprinkled lightly on the surface of the soil or moss will combat these pests for an extended period of time. So far no injurious effects have been noted on *Sarracenia, Dionaea, Drosera* or *Pinguicula.* Just be careful not to get granules directly on the plants.

Safer's Insecticidal Soap is useful and harmless for an occasional mealybug, aphid or whitefly but may not be effective for large outbreaks or infestations.

Benomyl is a miracle cure for black rot on Venus Flytrap leaves. An occasional spray (once a month) keeps the black rot from occurring at all. It also stops black rot if it does get started and prevents it from spreading. It is also effective on other occasional gray mold problems and rots.

These three production helpers are all that have ever been necessary for insectivorous plant production in our greenhouses, and have saved a lot of time and fuss associated with regular spraying, equipment, and potentially harmful spray materials.

## ICPS Directory Correction

Walter Greenwood, P.O. Box 432, Alburtis, PA 18011.

*(Second article of series relating to old CPN articles)*

# REMINISCENCES II

## CPN FIRSTS — PART 1

by Donald Schnell

In this the second of our somewhat nostalgic series I thought we would recall articles, projects, things done and so on, that more or less represent "firsts" in the CP literature. I will be concentrating again on the older volumes of our bulletin since most of our present subscribers are relatively new, and perhaps our older subscribers might like to be reminded of some interesting things that have happened in these old pages. As I mentioned once before, I have made it a habit to scan through all the past issues on at least a yearly basis and am continually surprised by some things I had forgotten we had done, or the origins of some projects we now more or less take for granted.

Now, first of all, there are many firsts in CPN over the years, and we cannot cover them all in this first article, hence the "Part 1" in the title. I have randomly selected a few to start with, and more will be discussed in later articles in this series at intervals. So, your first, or your favorite first done by someone else, will eventually be remembered. Have patience.

I guess the most obvious "first" to consider is the very existence of CPN itself. Again, it is one of those things many people might come to regard as just being there for all to enjoy, and that would be that. This is the first periodical that attempted to put as much information—including bibliography of articles published in widely scattered journals and magazines over the world—about our favorite topic between two covers on a regular basis. Since then, many other similar periodicals have come on to the scene; a few have lasted, many have fallen by the wayside. Most were and are rather similar to our earlier format and we have felt rather proudly that this was a compliment of sorts and welcomed them as additional means of communication among us, which is what CPN was all about in the first place.

Joe and I who started the thing (and to this day we have never laid eyes on each other!) wanted to start some sort of organized way of combining all the individual communications each of us was involved in into one newsletter available to all who were interested. You can see what was originally conceived to be a four or so page mimeographed newsletter has become.

And another peculiarity of the whole thing was that the cart came before the horse. We had very early on a bulletin equivalent in extent and quality to the bulletins put out by other kinds of botanical organizations of formal character, but we were not organized. We now have the charter and by-laws, but no one wants to get elected, so in fact the cart remains before the horse.

One of our firsts goes way back to the end of 1972 (1-59) where Warren Stoutamire described what were probably the first attempts to germinate seed of various CP on sterile nutrient agar media, a process that was well established in the orchid world and which Warren had long used for his orchid work. He described the formula for a suitable agar medium, gave instructions on preparing seed and inoculating the medium, and he had good results with various species of *Sarracenia, Drosera, Byblis* (which he remarked might require a year or more to germinate), *Darlingtonia, Heliamphora, Utricularia, Nepenthes* and *Pinguicula.* Quite an achievement so early on! Well, since then work in this area has mushroomed, particularly in the past 5-6 years. In this country, Bill Carroll and Ron Gagliardo have progressed to the point that tissue cultures as

well as seed germinations in sterile media are now offered on the market, thus contributing to a conservation effort as well as a ready supply of particularly desirable cultivars to collectors. Work in this area is also proceeding in other countries with very desirable results. I am not saying that all this would not have come about anyway, but I believe you read about it first in CPN.

One of our fondest efforts, because it was a product of genuine respect, affection and appreciation, involved a whole issue of CPN. This was the September, 1973 number (Vol. 2, No. 3) that was dedicated to the CP work of Dr. Edgar T. Wherry. In the botanical world at large, Dr. Wherry is most regarded for his work with ferns and the genus *Phlox*. But he also did some significant work covered in several journal papers on *Sarracenia* in the twenties and thirties. Dr. Wherry was always a very generous and patient man—he wrote letters and articles for CPN, he always answered his mail with thoughtful, personalized letters picked out on his typewriter, and he offered a perspective founded on years of botanizing that found him going into the field when he was in his nineties.

As an aside, I must mention his style, particularly his style of writing which seemed to be more individually expressed by many naturalists writing in the early part of the century. Another favorite example of mine is Frank Morton Jones. Somehow, they got all the scientific information into their papers and lectures and were not afraid of anecdotes and that personal touch that added that extra measure of what the writer and his work were all about. It was a pleasure reading them, as well as learning at the same time. Now, I can understand the well-intended purpose of modern requirements for a uniform structure for all scientific papers, the ease of being able to readily find what you need to find and expect to find in just the right paragraph of Introduction, Materials and Methods, Results, etc. That is nice. But it is also deadly dull. I get the distinct impression that given the right microchips, software, and feeding in the facts, a computer could spit most modern papers out by the dozen, all perfect in organization, syntax, acceptable grammar and punctuation. That would save time for everyone, too. But there is something distinctly missing, that feeling of a flesh and blood author coming through, someone who has failed as well as succeeded in human terms in his life, someone who has been bitten by mosquitos and camped in the field and who sweats.

But back to the issue which we believe was the first entire issue of a periodical dedicated to Dr. Wherry. The front cover featured a beautiful montage pen and ink drawing by Dave Kutt who contributed so much fine artwork to our earlier issues. He worked from a rather average snapshot of Dr. Wherry, added some Sarracenias in a greenhouse surrounding, and there it was created.

Inside, we had our usual features plus special articles including one by Dr. Wherry for the issue in which he furnished us with a brief biography of his professional life with emphasis on his work on *Sarracenia*. The article had "reminiscences" in the title, so that in addition to a very neat capsulized summary of his concepts of *Sarracenia,* little bits of the man came through. Joe Mazrimas did a superb job summarizing Dr. Wherry's formal papers on *Sarracenia,* and listed a bibliography at the end of his article. There were also articles on manually pollinating *Sarracenia* flowers and growing the plants. In keeping with the temper of the issue, Stephen Williams produced a very fine article saluting two other greats in our field—Sir John Burdon-Sanderson and Charles Darwin on the occasion of the centennial of the discovery of nerve-like activity in Venus' flytrap. The article included quotes from letters between the two. This issue is well worth looking through again.

On to another first. When most of us who have broad interests in CP started in the field, we were naturally attracted to the larger or more spectacular of the

## SAN FRANCISCO FLOWER SHOW

The San Francisco Flower Show is August 23-25. All Bay Area CPN members are eligible to enter their plants in this show.

Send a postcard with your address and phone number to the manager of the CP display: Tony Rea, 296 Precita Ave., San Francisco, CA 94110.

We would like to see a great turnout this year!

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species—*Sarracenia, Dionaea, Nepenthes,* glistening sundews. We kind of noticed but gave short shrift to such things as the Pinguiculas and Utricularias—we had read about them, they were kind of cute, that complex bladderwort trap described by Lloyd in his classic book was indeed complex and neat, and there we left it. Even professional botanists often threw up their hands in despair and most often referred to *Pinguicula* spp. and *Utricularia* spp. when mentioning the flora of a location and impatiently went on to the main purpose of their paper. All this was simply because there were no good botanical keys for arriving at the names of these plants in the field, and those keys published were fraught with errors. The problems with *Pinguicula* have been very capably handled by Caspar, Godfrey, Stripling and others in other publications. In the case of the bladderworts, Peter Taylor and Katsuhiko Kondo were particularly bringing some order to this area, but in widely scattered purlications on individual species or species groups, especially as far as the North American species were concerned.

In short, we felt that a good, accurate, workable key usable in the field and based on above the ground flowers and other structures readily visible during the active growth period was needed for our North American species. Kondo obliged and we were able to publish the first such key, with illustrations, in CPN (Vol. 2, pp. 66-69). Peter Taylor provided additional clarification and commentary in another issue (Vol. 3, pp. 4-5). Together, this material was a landmark and still stands. I attribute my ability now to identify all North American Utricularias at a glance in the field to having used this excellent key over the years. It was in some demand after publication and we made offprints which were sold for cost of printing plus postage. Another article worth looking at again—let's not ignore those little masses of yellow flowers.

We will cover some more firsts in a later article. See you next issue on another subject.

# NEW LIFE FOR A DROSERA

by Brother Roy (Taize Community, 71250 Cluny, France)

It was a sad moment discovering that the *Drosera capensis* which had done so well last year and was to my knowledge safely passing winter in a state of suspended animation, had frozen.

The maxima/minima thermometer close by stated clearly that the temperature at present was −5 °C and that the depths of −18° C had been plummeted!

Uprooting it in order to save the precious mixture of sphagnum, I noticed that a small part of the main root system had a slightly healthier aspect than the rest. Remembering that success had been achieved last year using a rather novel propagating method in order to multiply some Venus Fly Traps, I thought it worth trying again. The method is not my invention and is cited in the book by Donald E. Schnell[1]. All I would like to add is that it works amazingly well.

It goes like this: Take a small plastic seed pot and overfill it with live finely chopped sphagnum pressing down gently, allow the moss to mound above the rim. Place a small clean cut piece of root on top[2] and stretch over a piece of fine mesh cheese cloth or surgical gauze attaching it with an elastic band around the pot. The ideal place to put it is in a propagator as warmth and high humidity are now essential but a plastic bag and a warm corner can be just as good.

Back to *Drosera capensis:* To my astonishment and joy, after barely a fortnight, I saw that two plantlets were growing through the gauze and now a month later they are two centimeters tall with three others boldly sprouting. A striking contrast to the seeds planted a month earlier from the very same plant and which still need the aid of a rather powerful optical instrument to identify them!

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[1] Donald E. Schnell, Carnivorous Plants of North America and Canada. Published by Blair in the U.S. (see page 105.)

[2] Last year a leaf stalk from *Dionaea muscipula* gave a mass of miniature traps in under four months using the same method.



*Drosera capensis.* Young plantlets growing from root propagation method as outlined in Donald E. Schnell's book. Photo by Brother Roy.

# NEPENTHES—COLOR THEM UNIQUE

by Ray Triplitt
(483 Cherry Ave., San Bruno, CA 94066)

Approaching the island of Luzon, you could see the water changing colors from blue, to green, to aqua—we were beginning our long-planned trip to the Philippines and Sabah. Our main objective was Mt. Legaspi on Mindanao and Mt. Kinabalu National Park to observe some of the more remarkable species of *Nepenthes*. But this was a vacation too, and would include other points of interest. The plane began its descent and minutes later we found ourselves on the tarmac struggling in the 110° F temp. We were met by Dr. Manas and a customs officer who helped expedite our entry which was a blessing because we were wilting rapidly from the heat.

Once settled in San Pedro, we headed east to Mt. Banahaw over rough dirt roads, plunging into piles of dust that left us gagging and choking. At the base of the mountain we located an unusual and striking form of *N. ventricosa* with crimson pitchers that were mottled in deep red. The majority of the plants grew in an open area while others dotted the fringe of the forest climbing small trees. An offer was made to take us to an *N. alata* site 20 miles south, but we declined because the horrors of the 18 hour flight had begun to bring us to our knees.

Back on our feet 2 days later, we proceeded to Camarines Prov. Highway 1 brought us a few miles short of Naga City where *N. ventricosa* was again observed growing on a dry hillside. Although exposed to full sun, their pitchers were a pale yellow/green which was a contrast compared to the plants seen on Mt. Banahaw. Some plants were in bloom but most of the flower stalks were spent and seed could be gathered easily at the slightest touch.

After a short return to San Pedro we departed for the Ifugao Prov. in the northern portion of the island. Ten hours later the road climbed to 7,500 ft. near Sagada then abruptly descended a serpentine route where the paved road ended, literally with a bang: dips, potholes, washes. You don't drive this stretch of rugged road; you endure it. At 4,500 ft. dust laden *N. alata* could be seen along the roadside amidst the dry grasses. As one ventured off the road more impressive specimens could be appreciated. Passing Bontoc we headed south on Highway 4 towards Banawe where we observed the more classical form of *N. ventricosa* perched on a cliff face at 5,500 ft. It was indeed an odd habitat with a number of plants attaching themselves to the thin soil between rocks and boulders without apparent ill effect on their growth.

The famous rice terraces at Banawe are breathtaking. Pages could be written about these terraces and the indomitable people who nurture them. We continued to see *N. alata* on this panorama during our entire stay in the area. Six days passed rather quickly, and reluctantly leaving the amenities of the hotel we headed for the long road back to San Pedro.

Next on our itinerary was Mt. Legaspi situated on the N.E. coast of the island of Mindanao. Though this island periodically captures the world's attention with its political and religious conflicts, encounters for the most part exist in the southern and western part of the island. The military check points that line the road to Mt. Legaspi serve to remind one of the volatile situation. After five hours on the infamous road, *Nepenthes* began to appear along the roadside. *N. mirabilis* and *N. alata* with pitchers profusely hanging from each plant were seen climbing trees as tall as 50 ft. Arriving at Mt. Legaspi, we came upon the conspicuous pitchers of *N. merrilliana* covering the ground and sending offshoots in all directions. Nothing we might have read or heard, nor any photograph, could have prepared us for the




Dr. Manas with pitchers of *N. globamphora* and *N. merrilliana.*
Photo by Ray Triplitt.

thrill of that first sight of this superbly adapted species. Plants having a diameter of 4 feet were not uncommon in this mild coastal climate where annual rainfall exceeds 60 inches. It's not surprising that these plants flourish in this region. The following day we explored the slopes more thoroughly and felt the full impact of Mt. Legaspi. We observed the beautiful *N. truncata,* the delicate *N. globamphora* and countless numbers of hybrids.

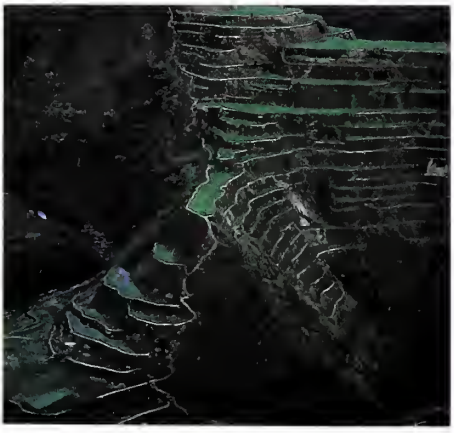
During our stay and quite by chance, we happened upon John Turnbull and his wife Anne Middleton on the northern slope. *Nepenthes* had also brought them to this part of the world. But, unlike ours, their interest in these plants overlapped into the scientific end of the spectrum.

Leaving Mindanao was a bittersweet departure. Born on this island, I found myself reminded of my childhood days. From here we flew to the island of Palawan to take in some scuba diving and managed to find time to visit an *N. alata* site near the barrio of Bacungan. The area held a sparse population of *N. alata* along a dry embankment overlooking a small stream. They were interesting nonetheless because of the absence of the glandular crest so prevalent in the *N. alata* we had observed to this point.

Making a brief stop at San Pedro we set off to Sabah for the last part of our journey. Our landing approach to Kota Kinabalu gave us an incredible view of Mt. Kinabalu. All the passengers were in awe of this 13,455 ft. giant dominating the surrounding landscape. After receiving our collection permit in Kota Kinabalu we began the 3 hour drive to Mt. Kinabalu National Park.

We first explored the trails that encircled the park headquarters. *N. fusca* were found well camouflaged among the ferns and dense groundcover. Here, in the next five days we would push our bodies to their limits by climbing the summit trail twice to a height of 10,500 ft. The climbs began at 4:00 a.m. with flash-

*Continued on page 48*



Rice terraces of Banawe
*N. alata* habitat



*N. alata* (Blanco)
Ifugao Prov., Luzon



*N. truncata* hybrids
Mt. Legaspi, Mindanao



*N. merrilliana*
Mt. Legaspi, Mindanao



*N. tentaculata*
Mt. Kinabalu



*N. fusca* (Danser)
Mt. Kinabalu
Photos by Ray Triplitt



*D. anglica* in a sphagnum bog in Sweden.

Photos by Mark Ainley



*S. purpurea* in habitat at Samuel de Champlain Provincial Park, Canada.

# CARNIVOROUS PLANTS IN CANADA AND SWEDEN

by Mark Ainley, 4828 Wilson Ave., Montreal, Quebec, H3X 3P2, Canada

During the past few years, I have had the pleasure, and good fortune, to have spent my summer vacations where several forms of carnivorous plants were found. This includes Canada and Sweden.

My "treasure islands" in Canada were Provincial Parks in Ontario. In 1980, during the first year of my interest in CP, I was thrilled when a guide at Neys Provincial Park, just off Lake Superior, showed me my first CP in the wild: *Pinguicula vulgaris* and *Drosera rotundifolia!* I had never seen these species before, and I knew not what to expect. There was an interesting point concerning the location of the plants, however; they were growing in rocks, just off the lake. The *Pinguicula* caught my attention right away; the green rosettes of sticky leaves were easily recognised. The *Drosera* were not as easily located, however. It turned out that they were right under my feet, hidden by their numerous flower stalks. Although they were infinitely smaller than I had hoped, I was still satisfied.

I landed my next Canadian "treasure island" in the summer of 1984: Samuel de Champlain Provincial Park, also in Ontario, along the Mattawa River. I was told about a sphagnum bog near a boardwalk, so I decided to investigate.

Near the exit of the boardwalk (I was told I'd arrive at the bog sooner that way), I was greeted by some *D. rotundifolia* growing on a log in a lake! Hopefully, there would be more CP inside! After walking for a little while on the boardwalk, and seeing more *D. rotundifolia,* this time in sphagnum, I decided to get off the boardwalk, and investigate the sphagnum more carefully. After coming in close contact with a stagnant pond, I decided to walk around it to see what I could find. After almost completing a circle around the pond, voila! Hundreds of *Sarracenia purpurea* greeted my CP-hungry eyes! The specimens, growing in deep sphagnum right next to the pond, ranged in size from 3 to 12 inches and in colour from deep purple to bright green. I wanted to take some samples, but it being a Provincial park, I had to restrain myself.

However, one year earlier, I found my true CP paradise: Sweden! I spent two weeks in the Swedish countryside, and found tons of pleasure! While travelling across the region of Dalarna, after a lengthy drive, our hosts decided to pull off the road for a break, so I decided to look around a bit. My eyes caught the sight of green and red sphagnum off the path, so I ran down to see what I could find in the moss that I soon discovered to be dripping wet. Loads of *D. anglica* and *intermedia?* the first non-rotundifolia sundews that I had ever seen! They were beautiful specimens, in full sunshine, so there were large globs of dew on the leaves. I quickly took some habitat pictures, put a sample in a cup, and it was time to leave.

We stayed in a cottage between Salen and the Norwegian border, and CP were in store for me every day. The first day, I discovered some *D. rotundifolia* near the base of a nearby mountain. Although there were several sphagnum bogs at a higher altitude, there were no more CP to be found.

A day or so later, after our hosts paid a brief visit to Norway, they brought back, to my delight and surprise, a shopping bag filled to the rim with *D. anglica* and *intermedia!* I planted them in plastic cups, and kept them in the cottage on the window-sill. The next day, I was taken to the bog where these plants were found. They were in a giant sphagnum bog, just off the road, near a beaver pond. The place was certainly littered with CP, and one had to be careful not to step on them, or sink into the numerous ponds in

the bog.

Towards the last days I spent in the Swedish countryside, I had my best find. Our hosts showed us some *P. vulgaris*, my first in Europe, growing in a rock/sand mixture, near a mountain stream. I looked around, and nearby, I discovered *P. vulgaris* and *D. rotundifolia* growing together in moss (not sphagnum). I walked around some more, and then found the largest *Pinguicula* I had ever seen! They were buried very deep in sphagnum between some bushes. Each leaf was at least 6 inches long and 1 inch wide. They were beautiful, but unfortunately, impossible to photograph.

The interesting common factor in all of my sightings is that no matter where the plants were to be found, the habitat was amazingly similar in both countries. The sphagnum bogs were alike, and the beaver pond made me feel like I was at home in Canada!

But no matter where I found my CP, each discovery was as exciting as the last.

*—Mark Ainley is a ninth grade student at West Hill High School in Montreal.*

# *Drosera capensis* (Crestate) An Historical Account

by R. Hanrahan, 2130 Meadowind Lane, Marietta, GA 30062

If my memory serves me right, it was back in '75 that there was an outbreak of Cyclamen Mite among *Drosera* collections in Southern California. The little pests were eventually eliminated but the deformed leaves reminded all of us of their destructive powers. At about this same time, I first noticed an unusual occurrence on one of my *D. capensis* narrow-leaf flowers (Photo #1). At first, it was suspected that the mites were still present or some residual effects lingered on from the mitecide that was used (Kelthane-WP). But being an avid propagator and always looking for intriguing varieties, I cut up the one leaf that had become bifid (forked at the tip) and hoped for budding (Photo #2).

As usual with this easy-to-propagate variety, budding took place and the plantlets were transplanted and grown on to maturity. One of the progeny developed into a plant characterized by the crestate growth form or an elongation of crown. (Photo #3). This most desirable feature was selected for mass propagation and the plant was put into a modified high volume production to see if the crestate feature would hold true. Subsequent propagations and the resultant plants conformed to the hoped-for crestate form. Plants were distributed to local collectors

*Continued on page 48.*



Photo #2
Photo by Bob Hanrahan



Photo #4

Photos both pages



Photo #5



Photo #1

by Bob Hanrahan



Photo #3

*Continued from page 45*

as a *D. capensis* form to watch and note any unusual growth patterns. Then one of the original propagated plants that I had began a most abnormal development in 1977. A single leaf emerged that was not only broad, but it assumed a spiral form of growth that simply bewildered me and others that saw it. Eventually the plant produced a flower that resembled the original flowering plant from 1975. No seed was produced, but the single leaf was photographed and then the leaf was amputated and photographed for historical records (Photos #4 & #5). The leaf was extensively propagated and the resultant progeny consistently produced the crestate growth habit. The plants were then distributed via WIP in 1979 as *D. capensis* "Crestate."

The many moves that were made from California to the East Coast and back and forth a couple of times eliminated many plants, including the "Crestated or Multifida" capensis. I would once again like to work with this particular clone and would be interested in hearing from anyone who still has an original clonal type in their collection. Perhaps we can re-establish and develop a *capensis* var. *multifida* into a fully established variant of this most popular species.

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*Nepenthes* — Continued from p. 41

lights required until it was light enough to see. *N. tentaculata* first appeared at 6,500 ft. and would be a common sight throughout the moss forest. At 7,400 ft. we left the main trail and observed *N. lowii* emerging from a steep cliff entwining the leptospermum trees growing on the ledge. The eccentric green pitchers and the bright red inner surface combined with a deeply vaulted lid made *N. lowii* the most unusual shaped pitcher we would come upon.

We continued through the dimly lit moss forest gaining altitude with each step. Beneath this closed canopy, trees were festooned with lichens while their trunks and lower branches played host to epiphytic orchids, mosses, and ferns. Scattered beams of light penetrating the passing cool mist and the strange forest acoustics only added to the eerie, but beautiful ambience.

Four hours later and our legs beyond pain, we left the moss forest and entered the ultra basic zone at approximately 9,000 ft. Here, *N. villosa* grew in abundance proudly displaying its red/orange pitchers among the dwarfed trees and scrubs. In dense areas, climbing plants sent their long tendrils cascading to the ground. When one views this plant for the first time, little doubt remains why *N. villosa* possesses such an illustrious repu-



Ray Triplitt with *N. ventricosa*
Ifugao Prov.

tation. The imposing teeth-like projections attached to the mouth of the pitchers and continuing up both sides of the prominent neck represent the ultimate development in a peristome.

Pressing on to the upper margin of the zone, *N. villosa* became sparse at about 10,500 ft. The weather remained clear and the view was spectacular from the lofty eminence.

On our second climb we left the summit trail numerous times and on one occasion, observed the hybrid *N.* × *kinabaluensis* (*N. rajah* × *N. villosa*) growing on



*N. ventricosa,* Luzon
Ifugao Prov. Laguna Prov. Camarines Prov.
Photos by Ray Triplitt.

a small mound. Although there were only 6 plants in the entire area, their presence was indeed a sight to behold. The large peltate leaves attached to robust stems sent thick tendrils into nearby branches and scrubs. The giant pitchers of this hybrid took on the best features of both parent plants making an extraordinary combination. The end result being *N. rajah* . . . with TEETH!

It rained profusely and continuously on our final descent which turned the steep trail into a muddy torrent. Soaked to the bone, it was well into the evening before we reached the cabin.

The next afternoon we left the park area and drove to Bundu Tuhan where we observed *N. reinwardtiana* and *N. gracilis* on a ravine a mile S.W. of the town. The rest of the day was spent at the Mamut Copper Mine looking over a *N. fusca* site.

On our last day at the park we made a point to visit Poring Springs located on the eastern part of Mt. Kinabalu where we indulged our weary bodies in the 125° F water. Here our seven week journey ended; a journey that was as marvelous to us as those of the early explorers who first encountered these unique plants. I doubt if our memories of the Philippines and Sabah could ever be misted over by other sights, other days.



*N. villosa,* Mt. Kinabalu
Photo by Ray Triplitt.

# The Victorian Wardian Case
# A tool for modern times

by Jeffrey K. Risner, 617 Carriage Hill Dr., Athens, Ohio 45701

One of the major frustrations to the CP enthusiast is the apartment he or she lives in. Apartments seem to be designed with the intention to make the environment as hostile to CP as possible. Natural light, the most important environmental factor, is usually at a minimum. Have you ever noticed that most apartment windows seem to face north?

I have found a method to overcome this limitation of light and also keep humidity and temperature fairly constant; it's a variation of the Victorian Wardian case. The Wardian case is a cross between a small greenhouse and a large terrarium. The Wardian cases were originally used by collectors and early naturalists to transport rare and exotic plants from all over the world to the great public and private gardens of Victorian England. Wardian cases were also displayed in the parlors and conservatories of many Victorian homes since they were attractive and required little care. My Wardian case is displayed next to our kitchen and supports 15 varieties of *Nepenthes* and 3 species of *Drosera*.

The case is 5 feet long by 3 feet high by 2 feet deep and is constructed of ¼ inch plywood. The seams are sealed with silicon and the inside is painted with several coats of white enamel to seal the wood and give maximum reflectance of light. The front of the case has two sheets of plastic which gives a good view of my jungle and easy access to the inside.

Lighting is provided by two sets of 4 foot fluorescent shop fixtures each with two 40 watt tubes. The fixtures are mounted inside the case and hang 3 inches from the top. Humidity is provided by a one gallon cool mist type humidifier inside the case. It maintains a relative humidity of 90% and 100% night and day. Lighting and humidity are controlled by electric timers.

The type of water used in the humidifier is important. Tap water will leave mineral deposits on the plant leaves and also clogs the humidifier. I had used distilled water which works well but does tend to cost. Recently I purchased a reverse osmosis, RO, water filter and the water produced is 90% mineral free. This leaves the *Nepenthes* leaves mineral free and healthy.

To conclude, my Wardian case is very successful in its purpose of providing a stable growing environment for my CP and displays them so they can be studied and enjoyed.

# Q & A

**Thomas Alt of Germany asks:** I received a plant from Australia with name *S. leucophylla*—hairy form. The plant looks like normal *S. leucophylla* species but the pitchers have many hairs. I have other *S. leucophylla* plants with smooth walls. Is this plant a natural form or a hybrid?

**Answer:** Broadly speaking, your plant is likely a hybrid, but one that has gone through several more breeding stages than the simple hybrids. Your plant most likely represents a backcross or introgressive macrorecombinant that arose as follows. In the area of the US where *S. leucophylla* normally grows, hybridization commonly occurs with other *Sarracenia* species. One such species is *S. purpurea* ssp. *venosa*, which happens to have a "hairy" surface. A simple hybrid between these two species is easy to identify, and the plant hairs of *S. purpurea* most often carry through to the hybrid. Now, if the hybrid, which is quite fertile, backcrosses with another *S. leucophylla*, once or even

twice, then the ensuing plants will more and more assume the character of *S. leucophylla.* However, through various genetic activities during meiosis and mitosis that we will not go into here, individual characters of the *other* parent (such as the "hairiness" of *S. purpurea* in that area) may persist in a plant that looks very much otherwise like *S. leucophylla.* Furthermore, such a plant may self and the seedling progeny—many or most—will possibly maintain the "hairy" characteristic, resulting even in a small stand of such plants. In situations such as this we enter the vague area of what constitutes a permanent genetic variant resulting in a new taxonomic *form* or *variety,* the choice often depending on the experience and judgment of the investigator and what evidence is available to study. In a genus whose species and their hybrids interbreed so easily and prolifically, such judgments have to be made with caution. I believe a similar cause has resulted in the "stocky, hairy variant of *S. alata*" that we have read about (and which I have seen in the field). The residual "stockiness" and "hairiness,' and side by side comparisons with "pure" *S. alata* strongly suggest residual genetic features of *S. purpurea* ssp. *venosa* also.

## REMINDER

If an issue is returned to us by the post office, no further issues will be sent until a change of address is received. For change of address or inquiries regarding your subscription, contact Pat Hansen, 3321 Hamell Road, Fullerton, CA 92635.

# THE CATALOGING OF CP STATIONS

by J.B. Stahle, Sr., 700 Mulberry St., York, PA 17403

Due to the fact that carnivorous plants are facing a daily confrontation with man's follies, conservation will surely become a necessary fact of life for all of us (Campell 1983; Mohlenbrock 1983). The number of "regional experts" will have to increase and the collection and monitoring of data from known CP stations continue. Of all the information accumulated by CP enthusiasts, the cataloging of stations is the most essential type of preparation needed, and yet is the most frequently neglected.

I view cataloging (using the "Carnivorous Plant Station Survey and Record" format), as a multi-purpose tool that could serve the needs of the ICPS in building a foundation for a more positive future for CP and their habitats. As a result, to ensure the preservation of record sheets and the utilization of the catalog system to its maximum potential, a depository would be established. For example, one set of data sheets is retained by the collector as a sort of accession file and a duplicate set of record sheets deposited with and becoming the property of the ICPS, a university with parallel interests or the Nature Conservancy. The data could then be available to the academic community upon request.

There are several types of cataloging systems: straight coding, serial, etc.; but for more practical purposes an intermediary cataloging system is preferable. This enables one to refer to specific stations in publications and discussions, while still preventing disclosure of the exact locations to individuals possessing questionable motives. To reduce the possibilities of exploitation, authors currently must resort to various degrees of vagueness when discussing CP locations resulting from field work (Schnell 1980, O'Neil 1983). With the catalog system, authors can freely discuss specific stations such as Thomas Can-On-27, and the reader

wouldn't know if said station was located at Goderich or Hamilton. At the same time, if Mr. Jones writes about work conducted at Can-On-27, the membership would know that this is the same station visited by Mr. Smith several years earlier, and then the data could be correlated.

The proposed system could also apply when labeling illustrations. Thus Waugoshance Point (Mellichamp 1982, p. 11) would appear as Lewis 22-Em-5 and Crestview—off 1-10 (Miller 1979, p. 128) as Brown 9-01-98.

The station number is formulated by first using a number corresponding with the state. For example, 38- is the key designation for Pennsylvania, 9-Florida, 12-Hawaii. I use a two-letter initial for the county. Thus 38-Yo- is York County, Pennsylvania. International coding is modified as needed. For example, Canadian stations could be designated Canada-NB- for New Brunswick, -Ne- for Newfoundland. The last segment of this code is a numerical designation for a specific station where CP are located within the county or province. Thus 38-Yo-1 is the Wilkens station at Dillsburg, which is station No. 1 in my York County survey.

The station name is taken from the name of the landowner at the time when the station was first recorded. Since CP habitats vary in size, from small roadside ditches to massive areas covering acres of landscape, stands of CP are commonly dissected by property lines, roads and creeks. Where a property line dissects a particular stand of CP, the stand would be designated as separate stations. For example, Thomas 38-Yo-12, Haines 38-Yo-13. I prefer also to assign separate station numbers to stands of CP found on the same property, if they are dissected by farm lanes, creeks or fences. Landowners periodically modify sections of property which could affect certain stands of CP and not others. Thus, the Haines station might warrant more than one catalog sheet. For example, Haines 38-Yo-13, Haines 38-Yo-14.

The catalog forms themselves may vary, but a pack of filing cards is clumsy and cards get misplaced in the series. Ledgers are inadequate because additions must be constantly made to all parts of the catalog and one cannot allow for this in a bound volume. I prefer to keep records on loose sheets of paper of uniform size mounted in a loose-leaf or spring-back binder. A cross index can also be kept for stations by species.

Depending on the depository's resources, a computer can be utilized to store and retrieve data at various levels of complexity, but the maintenance of record sheets and topographic maps would continue.

The Topographic Survey maps are an integral part of the catalog and the station numbers are marked directly on these sheets. The USGS 7.5 min. series is preferred because it shows more detail and is recommended over the older 15 min. series. With the record sheet at hand to check species distribution and a topographic map showing station locations, a member can plan out a more successful and economical field project without leaving the depository. Less time searching, reduced gas useage and more time for research is the objective (Schnell and Sivertsen 1974).

When a record sheet is received by the depository, the station location is checked with the topographic maps to determine if this location has been submitted earlier by another member. If the station is on record, the member is informed of the station's recorded date and is given (for his catalog), the RECORDED station name and number. Note: the member might receive a different station name, due to an earlier land owner. The RECORDED name and number is RETAINED thereafter and referred to. All members possessing a record sheet for the SAME CP station will in effect, have identical names and numbers on file.

The success of the catalog system depends on accurate data. As a result a "Carnivorous Plant Station Survey and Record" form is VALID only if the following items are met:

1. All data must be collected by the SUBMITTER (barring technical assistance).
2. Transferring of data from herbarium records or other written sources to forms is NOT PERMITTED.
3. The submitter must obtain data through ACTUAL field research and observations.
4. Date information collected MUST appear on form.

An effort should be made to complete all parts of the form and submit it as soon as possible.

When I go into the field to locate new CP stations, I take a "field kit" containing various items and note paper to write on so my catalog forms are kept clean. I make an accurate sketch of the station if one is located, showing the extent of the CP stand on the property outlined in broken lines. I transfer this sketch later to the forms. Local residents are questioned about ownership of property, but if necessary, the owner's name and address can be obtained through township assesors and county land office records.

One should try to catalog stations existing in his own county or area before "branching out" to other areas. This will make periodic monitoring of recorded stations (which is needed for the depository) easier to handle. This is the whole concept of the "regional expert" (Schnell 1972).

For a complete geographical record and monitoring base (Schnell 1976, Wilson 1981), federal, state and county parks, preserves and other land holdings, must be surveyed and included in the catalog if CP exist on the property. The name of the park, etc., is recorded as owner, but the landowner's name prior to acquisition or the park director's name is used as station name for anonymity. The multiple station code might also apply as mentioned earlier.

With membership cooperation and the eventual accumulation of record sheets from all sectors supporting CP, the ICPS would have an effective tool for field research and analysis.

There always has been and always will be, the need for a link between the mosquito hordes and the laboratory and it's not my intention to foster any antisocial atmosphere between our "regional experts" and the remainder of the membership. The fact is that displacements occur, either because of economics, waning interests or age factors, resulting in an area not being monitored and "lost." The breaking of this important link can result in years spent trying to recover these misplaced CP stations. The proposed catalog system would reinforce these vital links. With the depository holding data sheets on important CP habitats, another member can be asked to take over. Depository monitoring can also reflect geographical gaps that would justify field work.

Regarding conservation (which is a primary function of a number of organizations), the ability to formulate and expedite appropriate legislation at times is halted because of inadequate, incorrect, and outdated records. The ICPS and conservation groups could support each other in their endeavors to ensure a future for our wetlands, currently flooded with uncertainties.

*Editorial comment:*

*Of course, the first problem would be to arrive at a total acceptance of what format to use for the data sheet, who would actually do the recording at whatever depository is chosen, and who has access to complete data held by the depository. The concept of "regional experts" and periodic monitoring of habitats is a good one, and is being implemented in a few areas. It would make it a lot easier if longitude and latitude degrees are used with reference to the topo maps. Let us hear from readers on their thoughts about this issue.*

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## CARNIVOROUS PLANT STATION SURVEY AND RECORD

STATION NUMBER _____ STATION NAME _____

SECTION I: LOCATION

STATE _____ COUNTY _____ TOWNSHIP _____

NEAREST TOWN _____ NEAREST ROAD _____

OWNER _____ ADDRESS _____

MAP REFERENCE: To locate the station on topographic map, measure in centimeters from the bottom printed edge upward, and the right printed edge inward.

7.5 QUAD. NAME _____ EDITION _____

UP _____ ACROSS _____

MAP SKETCH: Sketch the station location on the back of this sheet (Identifying by some point of reference, house, bridge, road, intersection, etc.)

SECTION II STATION DATA

STATION TYPE: (ROAD DITCH, LAKE SHORE, FEN, ETC.) _____

SOIL EVALUATION: _____

SOIL PH _____ DEPTH MONITORED _____ SURFACE WATER PH _____
LIST SPECIFIC CP REPRESENTED AT THIS STATION:

DATE INFORMATION COLLECTED _____
POSSIBILITIES OF DESTRUCTION:

SUBMITTED BY _____ DATE _____

ADDRESS _____

# Review of Recent Literature

Kondo, K., P.S. Lavarack. A cytotaxonomic study of some Australian species of *Drosera* (Droseraceae). Bot. J. Linn. Soc. 88(4): 317-334 1984.

The authors' present eleven new chromosome counts of Australian *Drosera* and compare them with 4 others already known. *D. paleacea* with a chromosome number of 2n=10 is the lowest in the genus and large size. *D. petiolaris* has chromosomes with diffuse centromeres. Most of the *Drosera* species studied are tuberous or tropical types and the results of this study suggest different evolutionary relationships than were established up to this time.

Speck, N.H., A.M. Baird. Vegetation of Yule Brook reserve near Perth, Western Australia. J. R. Soc. West. Aust. 66(4): 147-162 1984.

The clay flats of Yule Brook, 20 km southeast of Perth, Australia, have a shallow cover of sand and are waterlogged in winter and baked hard and dry in summer. The herbaceous flora is seasonal because of the extreme contrasts between the seasons. Among the sedges and shrubs which are perennial, one can find *Drosera, Byblis, Utricularia* and *Polypompholyx*.

Eisner, T. and DJ Aneshansley. 1983. Adhesive strength of the insect-trapping glue of a plant (*Befaria racemosa*). Ann. Entomol. Soc. Am. 76:295-298.

This ericaceous shrub occurs in drier areas of the coastal plain of Florida and Georgia. It tends to have leaf surface glands that entrap small insects similar to the situation in *Silene* spp., where indeed the process may serve the same process of protection rather than carnivory. However, the authors raise the thorny question of broadening the definition of carnivorous plants and suggest that as the insects decay, rain will wash nutrients into the soil.

DES

Wischnath, L. 1984. A new species of bladderwort for the aquarium. Aquarium International Digest, No. 36, p. 25

The author mentions a new species of bladderwort he found in a pond in Mexico. So far, the plant has not flowered for him or several botanical gardens even though it grows prolifically vegetatively. He has found it very useful as an aquarium plant (the specialty of this publication) since small fishes can hide among the tangles of the plant.

DES

## WANT ADS

**When submitting Want Ads, please be sure to print clearly for best results and to eliminate mistakes. Please circle the correct letter before each item (Want, Trade, Sell or Buy). Want ads are limited to carnivorous plants, terrariums, greenhouses and moss. There is a charge of ten cents per item, with no limit to the number of items you may submit per issue.**

**Send coin or check to:**
**Arboretum, Want Ads**
**California State University**
**Fullerton, CA 92634**

James Emrich (1125 Hayes Ave., Fremont, OH 43420). (WB) *Drosera filiformis* var. *tracyi, Drosera binata* (*multifida*), *Drosera intermedia, Sarracenia minor, Sarracenia psittacina, Sarracenia purpurea gibbosa, Cephalotus follicularis, Nepenthes* cuttings (any species), *Dionaea muscipula* (rhizomes), *Drosera linearis*.

Jason Lockridge (Route 2; Box 5; Centre, AL 35960). (WB) Seeds, plants or cuttings: *Sarracenia rubra* ssp. *jonesii, S. rubra* ssp. *alabamensis, S. alata* red lid form, *S. flava* 'Maxima,' *S. flava* no red pigment, *S. flava* all red type, any uncommon *Sarracenia* hybrids, *Drosera aliciae* 'Highland Red,' *D. aliciae* 'Plains Form,' *D. cuneifolia, D. curviscapa, D.* × 'Nagamoto' (*anglica* × 'Kansai'), *D. spathulata* Okinawa form, *D. filiformis filiformis* × *D. fil. tracyi, D. regia, D. multifida extrema, D. anglica, D. anglica* × *D. rotundifolia, D. prolifera, D. pulchella* giant form, *Drosera occidentalis, D. paleacea, D. dicrosepela* (different forms), *Pinguicula gypsicola*.

Roy Wittmis (3414 Old Lewis River Road, Woodland, WA 98674). (WB) Seeds of *D. gigantea, N. maxima, N. lowii, N. truncata*.



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*Nepenthes truncata* MacFarland in habitat on Mt. Legaspi, Mindanao, Philippine Islands. Photo by R. Triplett.